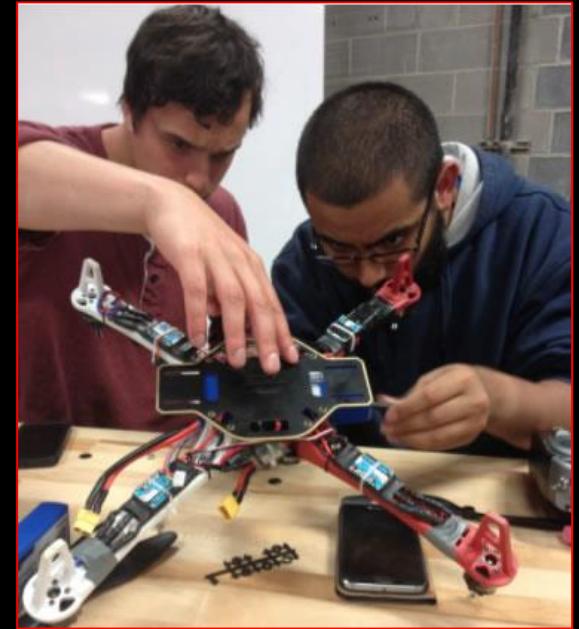




## Integrated Multidisciplinary Approach



Dr. Chris Bachmann

Dr. Nick Swayne

Dr. Tony Teate

## Integrated Science and Technology : Public Policy and Social Context



Education for Firefighters and First Responders about drone use



Lynchburg VA, April 30, 2014: explosion potential in crude oil train wreck



Civilian drone was used to survey explosion potential (BLEVE)



United States Department of Agriculture

## IF YOU FLY, WE CAN'T



DRONES NEAR WILDFIRES ARE NOT SAFE

FLYING DRONES OR UAS (UNMANNED AIRCRAFT SYSTEMS) WITHIN OR NEAR WILDFIRES WITHOUT PERMISSION COULD CAUSE INJURY OR DEATH TO FIREFIGHTERS AND HAMPER THEIR ABILITY TO PROTECT LIVES, PROPERTY, AND NATURAL CULTURAL RESOURCES.

FIREFIGHTERS MAY SUSPEND AERIAL FIREFIGHTING UNTIL UNAUTHORIZED UAS LEAVE THE AREA, ALLOWING WILDFIRE TO GROW LARGER.

CONTACT YOUR NEAREST LAND MANAGEMENT AGENCY OFFICE TO LEARN MORE ABOUT UAS AND PUBLIC LANDS.



Forest Service





## Educating Firefighters and First Responders about drone use



JMU Conference - March 2016

JMU ISAT  
Degree Program

FAA

International  
Association  
Of  
Fire Chiefs





## Integrated Multidisciplinary Approach to Real Problems



Kevin Giovanetti, Physics



Fred Briggs, NoVA Labs



Nick Swayne, JMU X-Labs



Audrey Barnes, Industrial Design



Sean McCarthy, Technical Communications

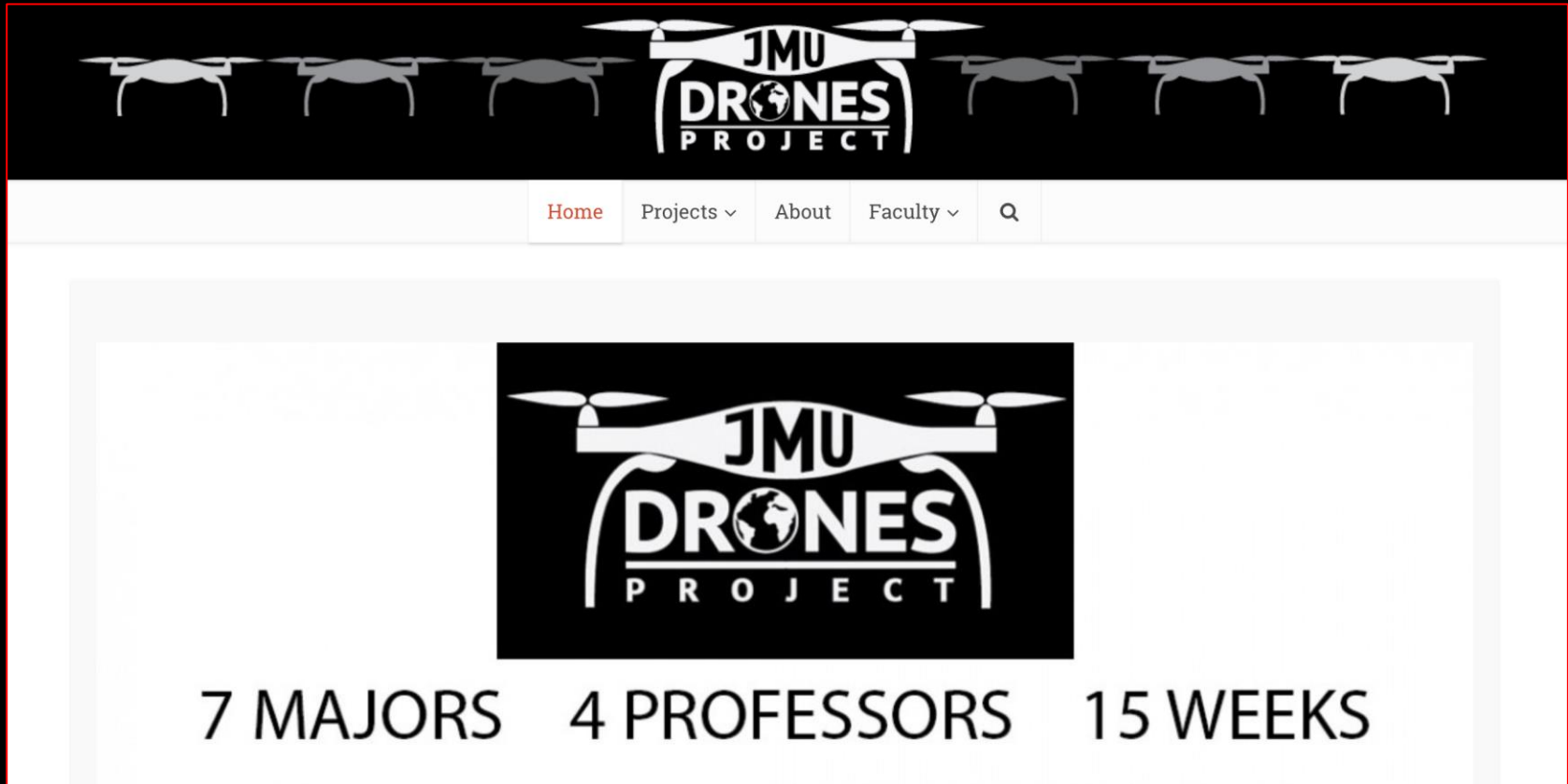


Bo Pollet, Aerospace Engineer NoVA Labs



Patrice Ludwig, Population Ecology

How can drone technology be used to respond to global problems?



The screenshot shows the homepage of the JMU Drones Project website. At the top, there is a navigation bar with a black background and white text. The text includes "Home", "Projects", "About", "Faculty", and a search icon. Below the navigation bar, there is a large white area with a black background. In the center of this area is a large logo for the JMU Drones Project. The logo features a white drone silhouette with "JMU" on its body and "DRONES PROJECT" below it. Below the logo, the text "7 MAJORS 4 PROFESSORS 15 WEEKS" is displayed in a large, bold, black font.

4-VA partnership with NoVA Labs



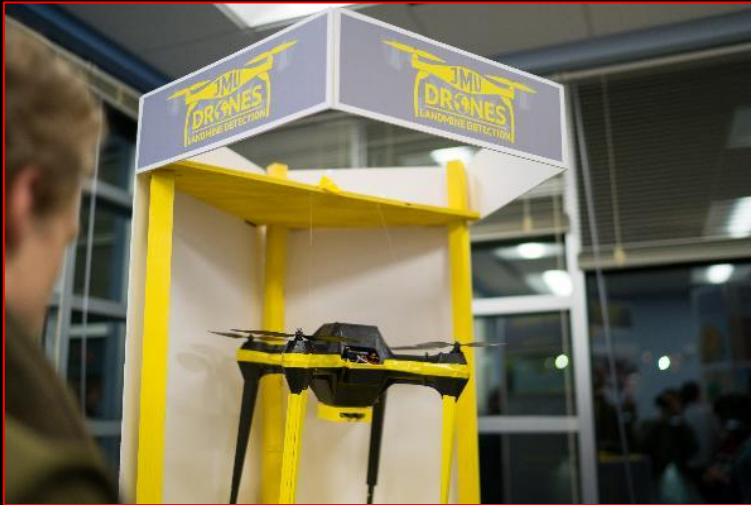
## Using Unmanned Aerial Systems For landmine detection and disarming



Every  
one c

very





Using Unmanned Aerial Systems  
For landmine detection

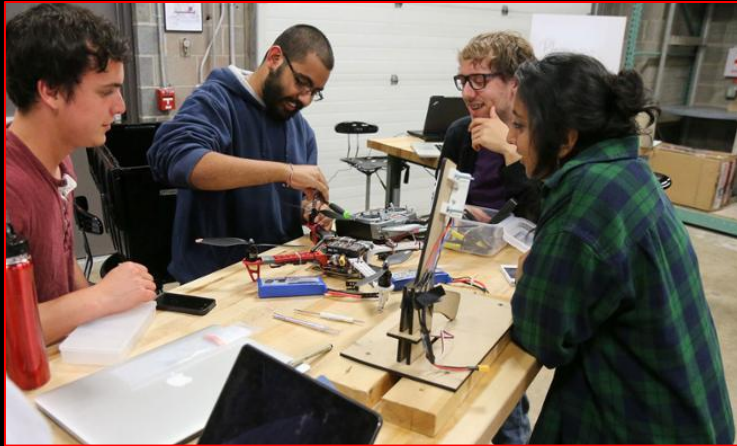
---

Photogrammetry

GPS location

Data –logging

Post-flight analysis



## Using Unmanned Aerial Systems For landmine disarming



Lithium polymer canister similar to revolver,  
swap out fully loaded

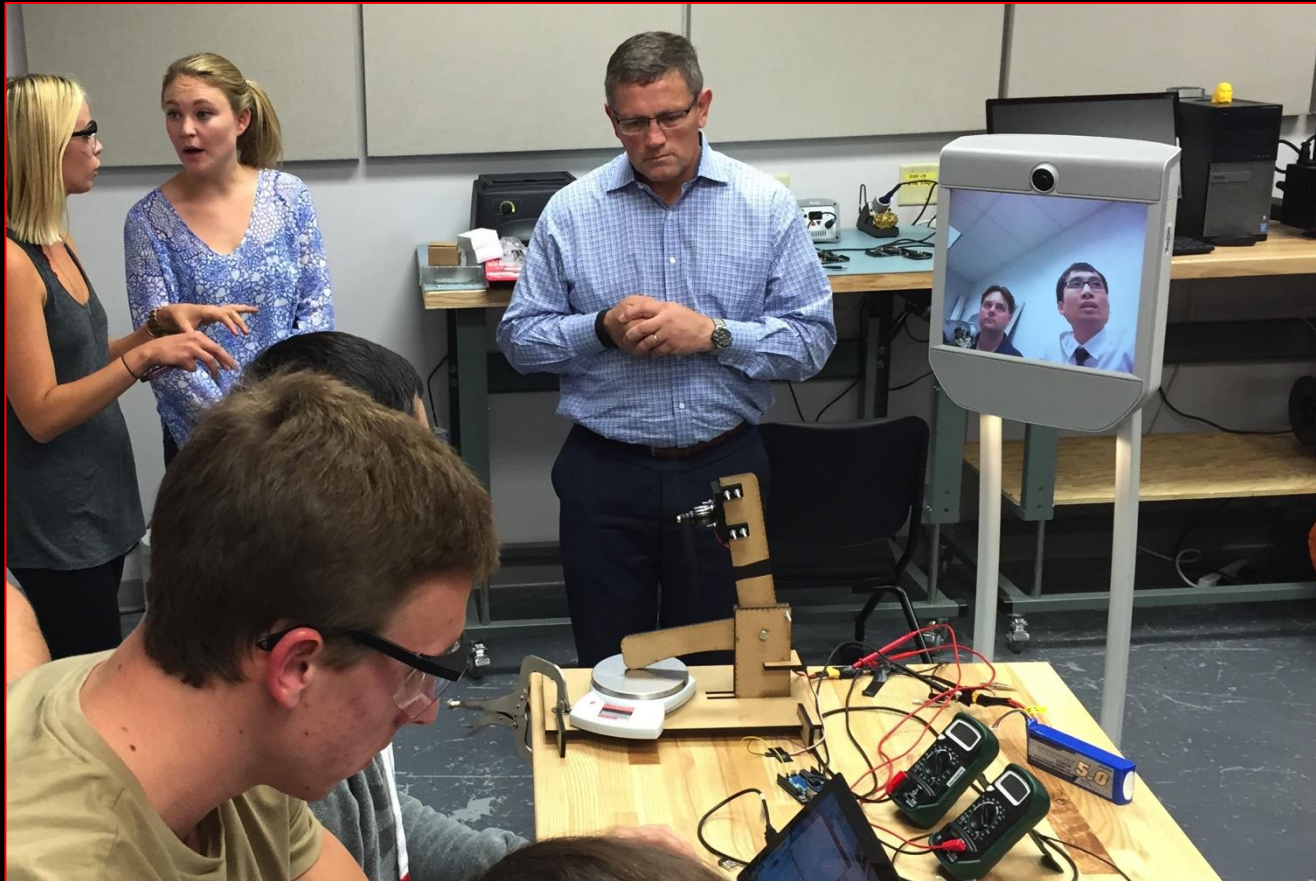


Integrated battery & ball-drop canister





## 4-VA Partnership bringing NoVA Labs into the JMU Classroom



*Fred Briggs and Christopher Vo using telepresence robots to interact with students*



Student enthusiasm is extremely high in many majors across campus





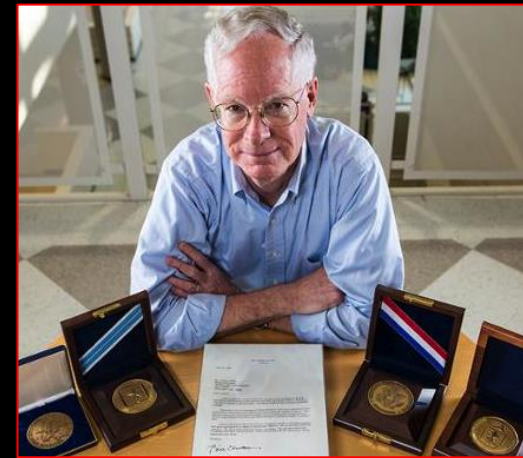
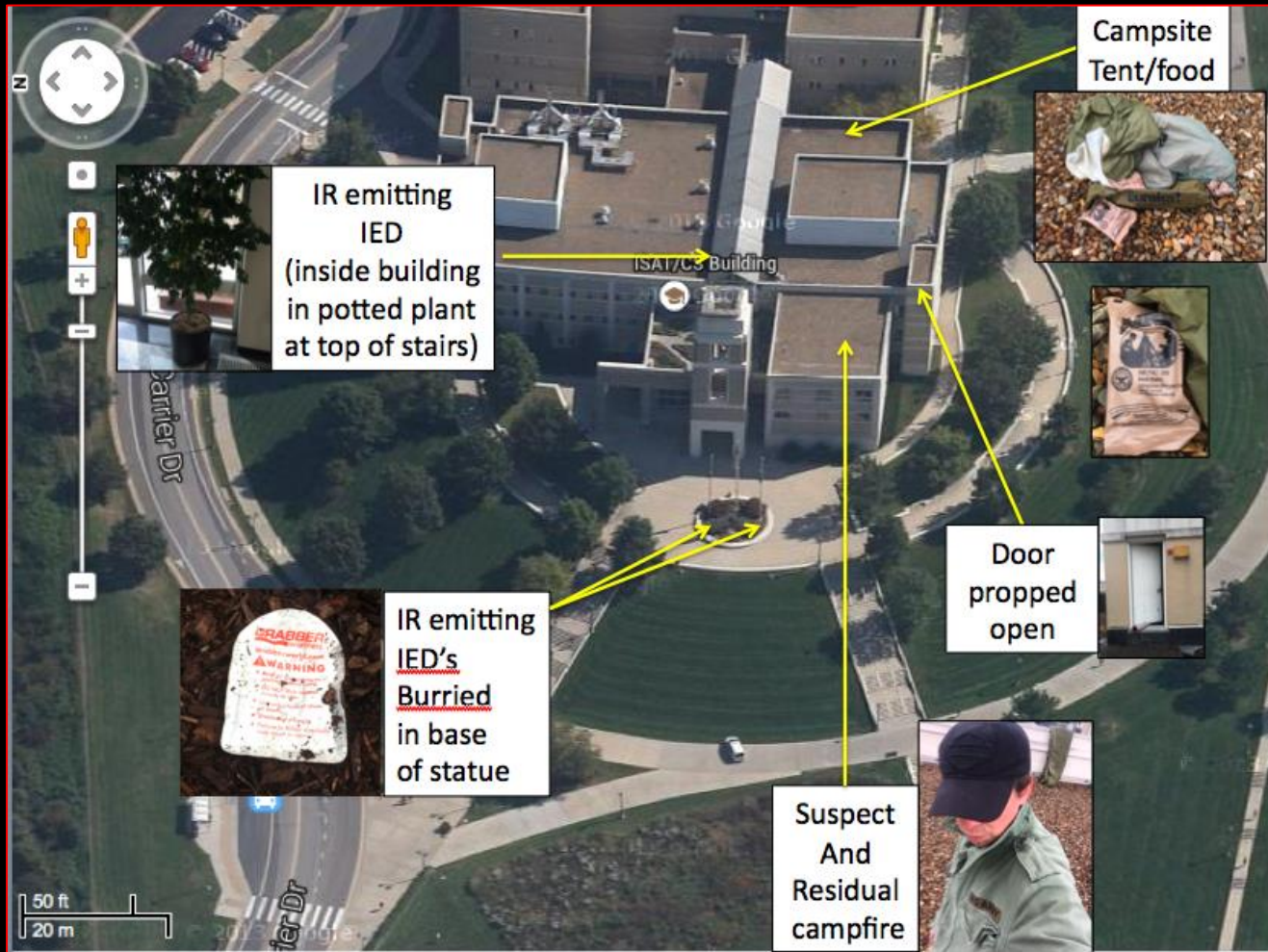


Students engage with UAV's even in their spare time....





## UAV's for JMU's Intelligence Analysis Program



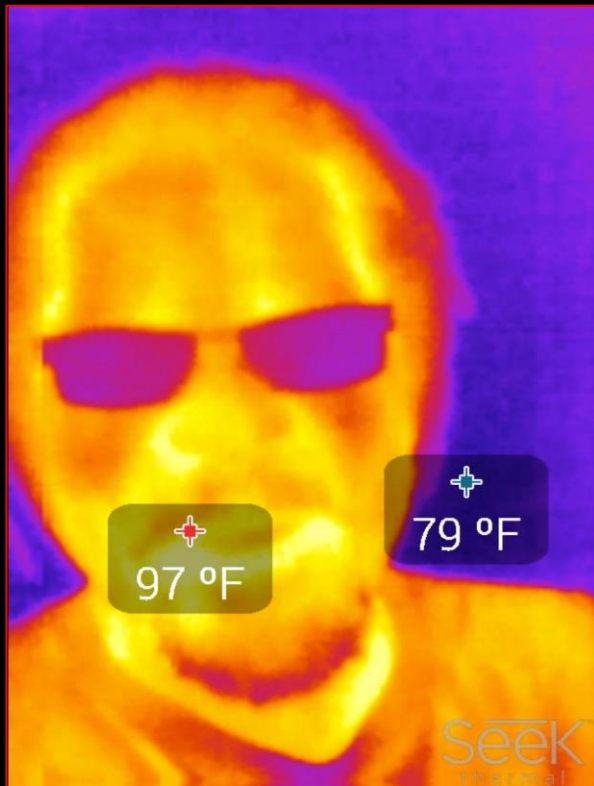
Dr. Tim Walton

JMU IEEE-CS



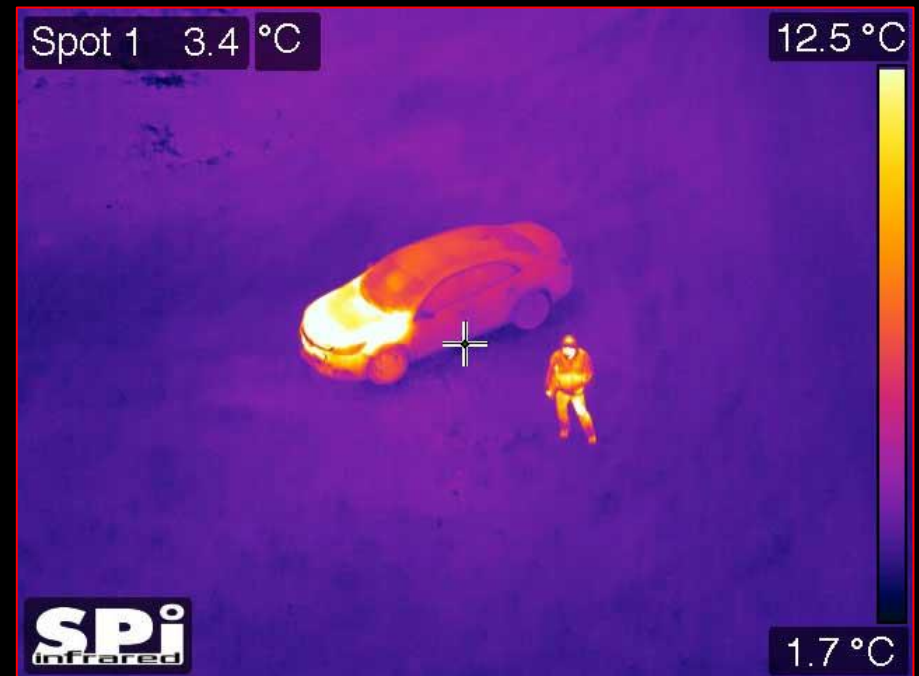


## UAV's for JMU's Intelligence Analysis Program



Dr. Tony Teate

### Thermal Imaging for threat detection



Satellites, Manned Aircraft, and UAV's for JMU's Partnering with outside expertise



[HOME](#) [ABOUT US](#) [FLIGHT SOLUTIONS & SERVICES](#) [OUR CUSTOMERS](#) [MEDIA CENTER](#) [CAREERS](#) [CONTACT US](#)



# INNOVATION

## TAKES FLIGHT.

THE DYNAMIC AVIATION DIFFERENCE






Largest **privately-owned** aircraft fleet in the world




**more than** 130,000 hours **of combat environment** experience

Data Acquisition, **Reconnaissance**, Aerial Applications, **Firefighting**....




HOMEABOUT USFLIGHT SOLUTIONS & SERVICESOUR CUSTOMERSMEDIA CENTERCAREERSCONTACT US



FLIGHT SOLUTIONS & SERVICES  
**FIRE MANAGEMENT**

**Leading The Way In Fire Management**

Dynamic Aviation has been providing lead planes for fire management since 1998.



FLIGHT SOLUTIONS & SERVICES

INTELLIGENCE, SURVEILLANCE & RECONNAISSANCE

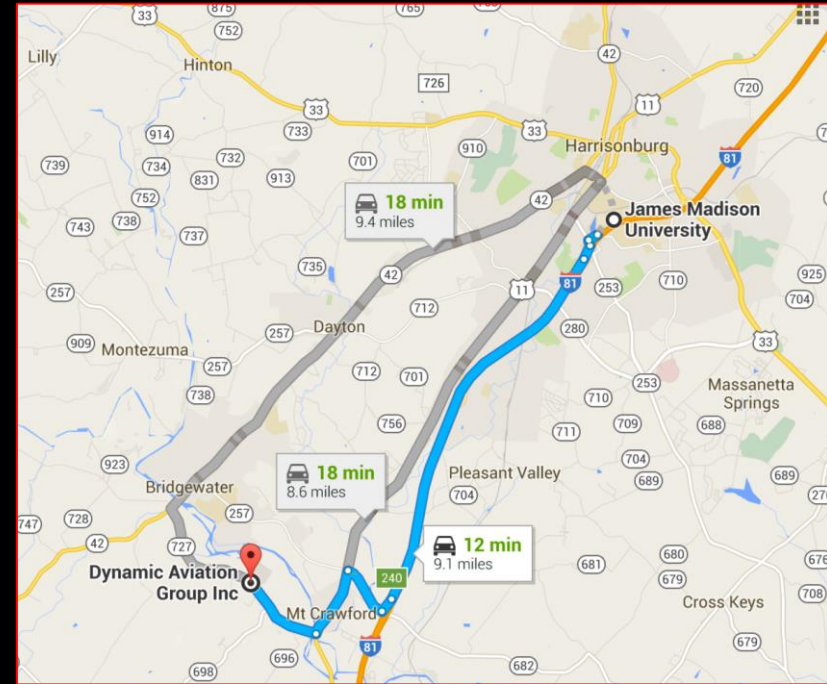
AIRBORNE DATA ACQUISITION

**FIRE MANAGEMENT**

AERIAL APPLICATION



Dynamic Aviation is a World-leader in custom aviation applications  
This is a remarkable opportunity for Virginia



Dynamic Aviation is very interested in Unmanned Aerial Systems



## Working together to position Virginia at the top of UAV airspace

### Relevant Bachelor Degrees at JMU and Areas of interest

Integrated Science and Technology: technology policy, education for first responders, sensors, manufacturing, programming, telecom, networking, and security,

Intelligence Analysis: understanding intelligence data from UAV's

Geographic Science: photogrammatry, multi-spectral analysis, GPS systems

Engineering: design and manufacturing, control systems

Physics: UAV design, robotics

Computer Science: programming, control systems, networking, information security

Industrial Design: entrepreneurship, rapid prototyping workspaces

Biology Concentration in Ecology: drones as environmental surveying tools

Writing, Rhetoric, and Technical Communications: digital media, community engagement

K-12 Education (IDLS): drones as teaching tools for STEM